

Patent claims

1. Process for the packet-oriented transmission of security-relevant data (11, 11b, 12, 12b), in particular  
5 under application of at least one transmission system comprising a parallel and/or serial network and/or bus system with at least one user connected to it, where in addition to the security-relevant data (11, 11b, 12, 12b) a redundant information based on the data (21, 21b)  
10 is transmitted, characterized in that the security-relevant data (11, 11b, 12, 12b) and the redundant information based on this data (21, 21b) is transmitted in different packets (1, 1b, 2, 2b).
- 15 2. Process according to Claim 1 characterized in that the redundant information (21, 21b) is encoded.
3. Process according to Claim 1 or 2 characterized in that the redundant information (21, 21b) is a check sum (CRC)  
20 calculated over the security-relevant data.
4. Process according to Claim 1, 2 or 3 characterized in that the security-relevant data comprise user data (11, 11b), check data (12, 12b) and/or control data.
- 25 5. Process according to one of the Claims 1 through 4 characterized in that several packets (1, 1b, 2, 2b) are transmitted within a predefined (superset) frame structure.
- 30 6. Process according to one of the Claims 1 through 5 characterized in that the packets within a predefined (superset) frame structure) comprise security-relevant data (11, 11b, 12, 12b) and redundant information (21,

21b) that are allocated to each other.

7. Process according to one of the Claims 1 through 6 characterized in that the packets (1, 1b, 2, 2b) with security-relevant data (11, 11b, 12, 12b) and redundant information (21, 21b) that are allocated to each other are transmitted in a parallel or serial way.
8. Process according to one of the Claims 1 through 7 characterized in that the packets (1, 1b, 2, 2b) with security-relevant data and redundant information that are allocated to each other are transmitted in strings or separately.
9. Process according to one of the Claims 1 through 8 characterized in that the packets (1, 1b, 2, 2b) comprise an addressing block and/or an identification code for their logical allocation.
10. Device, in particular for a transmission system with at least one parallel and/or serial network and/or bus system, for the packet-oriented transmission of security-relevant data (11, 11b, 12, 12b) comprising means - arranged on the side of the sender - for the packet-oriented embedding of security-relevant data (11, 11b, 12, 12b) and allocated redundant information (21, 21b) into different packets (1, 1b, 2, 2b).
11. Device according to Claim 10, characterized by an encoding device for the encoding of the redundant information (21, 21b).
12. Device according to Claim 10 or 11 characterized in that the means for embedding are allocated means for the generation of redundant information (21, 21b) with the

same number of bits (n) as the security-relevant data (11, 11b, 12, 12b) to be transmitted.

13. Device according to Claim 10, 11 or 12 characterized in  
5 that the means for the generation and/or embedding are  
designed such that any possible combination of security-  
oriented data (11, 11b, 12, 12b) of a packet (1, 1b)  
unambiguously results in exactly one of the possible  
combinations with allocated redundant information (21,  
10 21b) within the packet (2, 2b).
14. Device, in particular for a transmission system with at  
least one parallel and/or serial network and/or bus  
system, for the packet-oriented transmission of  
15 security-relevant data (11, 11b, 12, 12b), in particular  
according to one of the Claims 10 through 13  
characterized by means arranged on the side of the  
receiver for the verification of an error-free data  
transmission based on security-relevant data (11, 11b,  
20 12, 12b) and allocated redundant information (21, 21b)  
embedded in different packets (1, 1b, 2, 2b).
15. Device according to Claim 14 characterized in that the  
means for the verification are allocated means for  
25 reading out and allocating security-relevant data (11,  
11b, 12, 12b) and allocated redundant information (21,  
21b) received in different packets.
16. Device according to one of the Claims 10 through 15  
30 characterized in that several packets (1, 1b, 2, 2b)  
with security-relevant data (11, 11b, 12, 12b) and/or  
allocated redundant information (21, 21b) can be  
transmitted within a predefined (superset) frame  
structure.

17. Device according to one of the Claims 10 through 16  
characterized by means for the packet-oriented embedding  
and readout of addressing blocks and/or identification  
codes for the logical allocation of individual packets  
5 (1, 1b, 2, 2b) and/or their contents (11, 11b, 12, 12b,  
21, 21b) to each other.
18. Device according to one of the Claims 10 through 17  
characterized in that the means are allocated to slave  
10 devices and/or a master device.
19. Transmission system with at least one parallel and/or  
serial network and/or bus system and with at least one  
device according to one of the Claims 10 through 18.  
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20. Transmission system according to Claim 19 wherein there  
is at least one ring-, line-, star- and/or tree-shaped  
network and/or bus structure.
- 20 21. Transmission system according to Claim 19 or 20  
comprising at least one Interbus, one Ethernet, one  
Profibus and/or one CAN.
- 25 22. Use of a transmission system according to Claim 19, 20  
or 21 in the fields of building control technology,  
process industry, manufacturing industry, passenger  
transportation and/or for the operation of an automation  
plant.